

What Is Claimed Is:

1. A pulsation dampening apparatus used for a hydraulic clutch operation system which has a hydraulic circuit comprising:

    a housing which has a dampening chamber interposed in the hydraulic circuit;

    a dampening assembly accommodated in the housing, said dampening assembly including:

        a working unit which alleviates pulsations generated in the dampening chamber, and

        an elastic retainer provided between the housing and the working unit in a preloaded state in that the elastic retainer is elastically deformed from its free state to retain the working unit firmly in the housing; and

    a force conversion mechanism which converts a spring-back force of the elastic retainer in said preloaded state to a force acting against the working unit.

2. A pulsation dampening apparatus according to claim 1, wherein said elastic retainer is a C shaped retaining ring mounted in an annular groove formed in the housing.

3. A pulsation dampening apparatus according to claim 2, wherein said force conversion mechanism has a cam surface by which the spring-back force of the elastic retainer in said preloaded state to the force acting against the working unit, said cam surface of the force conversion mechanism is formed only on the groove in the housing.

4. A pulsation dampening apparatus according to claim 2, wherein said force conversion mechanism has a cam surface by which the spring-back force of the elastic retainer in said preloaded state is converted to the force acting against the working unit, said C shaped retaining ring and the groove of the housing have respectively the cam surfaces which abut with each other in assemble condition.

5. A pulsation dampening apparatus according to claim 2, wherein said force conversion mechanism has a cam surface by which the spring-back force of the elastic retainer in said preloaded state is converted to the force acting against the working unit, said C shaped retaining ring has slopes chamfered on both outer peripheral sides.

6. A pulsation dampening apparatus according to claim 1, wherein said dampening assembly includes a cover member which covers the working unit.

7. A pulsation dampening apparatus according to claim 1, wherein said working unit includes a vibration dampening member which receives the hydraulic fluid in the dampening chamber to absorb the pulsations in the hydraulic fluid.

8. A pulsation dampening apparatus according to claim 7, wherein said working unit includes a seal member which elastically adhesively seals the dampening chamber to prevent the hydraulic fluid from leaking from the dampening chamber.

;

9. A pulsation dampening apparatus according to claim 7, wherein said working unit includes a fulcrum member which provides the vibration dampening member with a fulcrum.

10. A pulsation dampening apparatus according to claim 9, wherein said working unit includes a cover member disposed between the fulcrum member and the elastic retainer so that the urging force of the elastic retainer is transmitted to the fulcrum ring.

11. A clutch master cylinder used for a hydraulic clutch operation system which has a hydraulic circuit comprising:

a cylinder body having a pressure chamber interposed in the hydraulic circuit; and

a pulsation dampening apparatus, said pulsation dampening apparatus including:

a housing integrally formed with the cylinder body, said housing having a dampening chamber interconnected with the pressure chamber;

a working unit which alleviates pulsations generated in the dampening chamber; and

an elastic retainer provided between the housing and the working unit in a preloaded state in that the elastic retainer is elastically deformed from its free state to retain the working unit firmly in the housing; and

a force conversion mechanism which converts a spring-back force of the elastic retainer in said preloaded state to a force acting against the working unit.

12. A clutch master cylinder according to claim 11, wherein said elastic retainer is a C shaped retaining ring mounted in an annular groove formed in the housing.

13. A clutch master cylinder according to claim 12, wherein said force conversion mechanism has a cam surface by which the spring-back force of the elastic retainer in said preloaded state is converted to the force acting against the working unit, said cam surface of the force conversion mechanism is formed only on the groove in the housing.

14. A clutch master cylinder according to claim 12, wherein said force conversion mechanism has a cam surface by which the spring-back force of the elastic retainer in said preloaded state is converted to the force acting against the working unit, said C shaped retaining ring and the groove of the housing have respectively the cam surfaces which abut with each other in assemble condition.

15. A clutch master cylinder according to claim 12, wherein said force conversion mechanism has a cam surface by which the spring-back force of the elastic retainer in said preloaded state is converted to the force acting against the working unit, said C shaped retaining ring has slopes chamfered on both outer peripheral sides.

16. A clutch master cylinder according to claim 11, wherein said dampening assembly includes a cover member which covers the working unit.

17. A clutch master cylinder according to claim 11, wherein said working unit includes a vibration dampening member which receives the hydraulic fluid in the dampening chamber to absorb the pulsations in the hydraulic fluid.

18. A clutch master cylinder according to claim 17, wherein said working unit includes a seal member which elastically adhesively seals the dampening chamber to prevent the hydraulic fluid from leaking from the dampening chamber.

19. A clutch master cylinder according to claim 17, wherein said working unit includes a fulcrum member which provides the vibration dampening member with a fulcrum.

20. A clutch master cylinder according to claim 19, wherein said working unit includes a cover member disposed between the fulcrum member and the elastic retainer so that the urging force of the elastic retainer is transmitted to the fulcrum ring.